

# A REVIEW ON THE POSITIVE AND NEGATIVE EFFECTS OF COVID-19 IN THE HUMAN LIFE AND ENVIRONMENT

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## ABSTRACT

The ongoing COVID-19 epidemic has resulted in new dimensions in the efficacy of the economic and environmental while this virus impacts in human life to create problems in human life. The main objective of this study is to analyze the positive and negative impact on the human and environmental situation of COVID-19 in the world. many research works were done on individual issues for one state of a country but not all state or country data are not available in any sources of the world. To accomplish this goal, preliminary analysis, review articles and reviews released over the past five years have been analyzed with various research data such as NCBI, EMBASE, Google Scholar, PubMed/MEDLINE and MDPI from related clinical trials and animal studies with English terms search: COVID-19, lockdown, financial problem, environmental health problems. The COVID-19 was declination of the GDP, remittance, market policy, private sector credit, tourist industry, employment status, health emergency, shock in education, restrictions in recreation and created pollution like as water, microplastic pollution. The positive effect of covid-19 was the reduction in air and noise pollution, regeneration of biodiversity, and established digital transformation in the world. However, this virus delimited financial sectors have also donated towards a good environment. If COVID-19 and lockdown are released, environmental pollution will increase more in the world. As a result, this research recommends that the policy makers must promote in the financial sector without

disturbing the environmental elements or create a new fund to help the environmental organizations.



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## 1. Introduction

Coronavirus type 2 (SARS-CoV-2) infection that causes severe acute respiratory syndrome is a Novel Coronavirus Disease (COVID-19), which was first detected in China in December 2019 [59]. It belongs to the family of coronaviridae taxonomic group Sarbecovirus, genus Betacoronavirus, and order Noroviruses. These are gram-positive RNA virus sequences ranging from twenty-six to thirty-two KB, crown-shape ones with a size of 80-160 nM, and next-generation sequencing, and an examination of the biological processes of sequences exposed to COVID- 19 [120]. It was noticeably identical 88% to 2 bat-derived SARS-like coronaviruses, and additional distance from SARS-CoV 79%, and MERS-CoV 50% [76]. It is an infectious pandemic that has recently infected more than two hundred countries in the world. It has unfolded to alternative countries acknowledged as a world pandemic [5], [60].

On January 30, 2020, WHO stated this serious outbreak as a Public Health Emergency of International Concern [118]. Later on, on March 11, WHO proclaimed this unseen, infectious, dangerous virus as pandemic when more cases and deaths were reported [124]. The highly contagious disease has spread to more than 215 countries. In Bangladesh first three cases of COVID-19 were detected on 08th March 2020 (IEDCR, 2020). The COVID-19 is distributed globally, which is not only related to the human health problem but also affects the environment and the world economy in diverse ways. The world economy reduces where the GDP is negative in maximum countries and remittance growth rate is lower than the previous year.

The COVID-19 virus affects the world economy and many studies estimated the impact the worldwide pandemic has on the worldwide economy. The International Monetary Fund (IMF) stated that the virus disease impacts the global economy, and in the middle of April had projected that the global economy will contract by 3% in 2020 [119]. But in June 2020, IMF reported that the growth at -4.9%, which was 1.9% points lower than the April forecast. according to the IMF, in June 2021, the global growth was projected at 5.4% where the gross domestic product (GDP) was about 6.5% points lower than in the pre-COVID-19 estimates of January 2020. The remittance is the second-highest earning source after the garments sector in Bangladesh. The remittance is influencing the GDP of Bangladesh. In 2019, the remittance was recorded at \$18.32 billion [10]. It covers up about 6-8% of the country's GDP and reduces a generous influence on macroeconomic stability, poverty reduction, and also in national income. It is a safety valve for lots of Bangladeshi migrant employees and their families. In 2020-2021, the GDP of India was lowest after the year 1991-1992 [29]. In early March 2020, the world GDP loss was -0.8% whereas the negative GDP was also found in China, the US, France, Germany, and Russia [82].

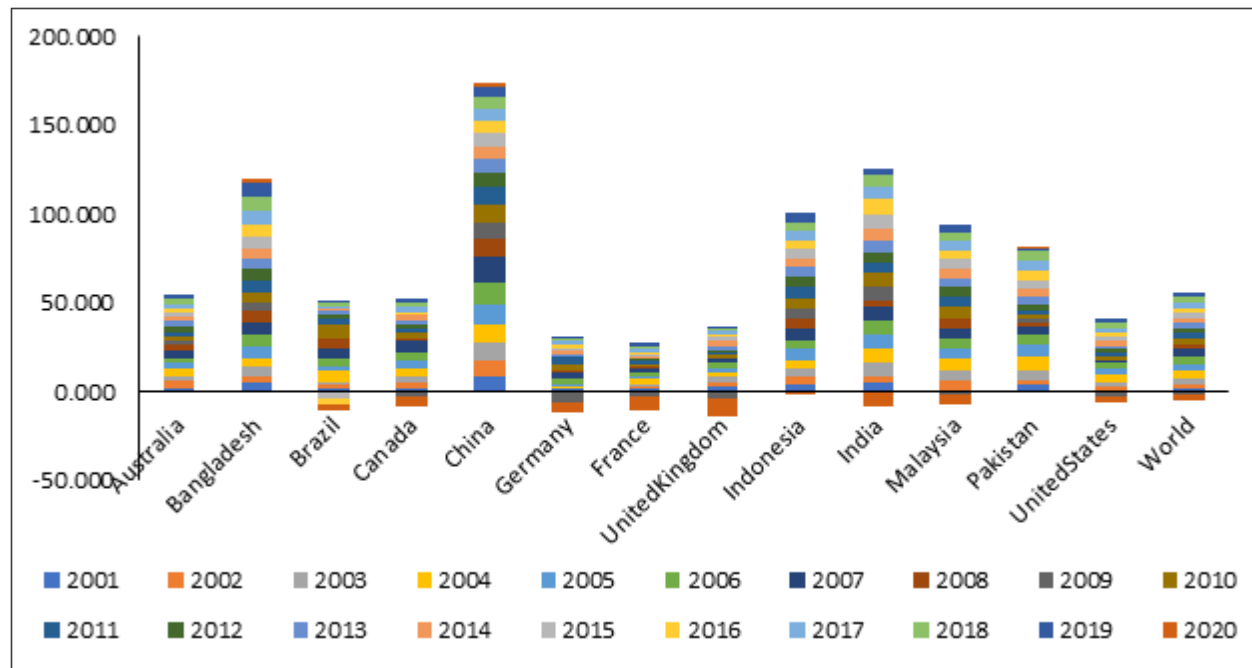
Although the COVID-19 is new, the old problems have become apparent at this time. Again, many positive aspects have been created. Although the economic situation in the world was deteriorating, its impact on the environment was normal. Many studies said that the excess elements of the environment are greatly reduced due to lockdown and COVID-19. The covid-19 created new problems also such as unemployed situation, water and plastic pollution, educational problem, restrictions in recreation, tourism industry, health

emergency, financial problem, fall in GDP and remittance, share market fall, and so on. The positive is improving the air elements, reduction in noise pollution, regeneration of biodiversity, improving the digital transformation, and so on. In many countries, coronaviruses are being recorded every day as the number of infections and deaths. Corona has become even more deadly by developing new stains. On the 3rd August 2021, the COVID-19 cases recovered and death is (199664421, 180141680, and 4250338) in the world [127]. Considering the above fact, this study focuses on the positive and negative impacts of COVID-19 from an economic and environmental perspective around the globe.

## **2. THE NEGATIVE IMPACT OF COVID-19 IN THE WORLD**

### ***2.1 Fall of GDP of the world***

The virus disease of COVID-19 is spread internationally. Many countries of the world have already taken or will ultimately act to boundary the spread, through social separation policies, such as restricting educational institutions, warning work, and limiting the mobility of people. The defensive actions have had an instant and significant impression on all economies. In Bangladesh, the prominent economic sectors are Agriculture, Industry, and service sectors which contributed (18, 29, and 53)%; respectively to the Indian gross domestic product (GDP) of the country are badly impacted by the COVID-19 epidemic [14]. The Asian Development Bank forecasts that Bangladesh will lose unevenly \$3 billion in its GDP concurrently work cuts for about 9 million individuals. In specific sector circumstances, the most noteworthy GDP misfortune and service cuts will be good to go division counting cash linked area, exchange and open managements (\$1.14 billion) followed by the travel industry (\$510 million), development and utilities (\$400 million), agribusiness (\$637 million), and transport administration (\$334 million) [1], [13]. Henceforth the COVID-19 and lockdown had a direct impact on the agriculture, industrial and service sectors of Bangladesh. In the first 11 months of 2020, the total export value was \$30,295.52 million, 15.40% less than \$35,812.27 million in 2019 (Bangladesh Bank, 2020a). The COVID-19 virus and lockdown were had a 4% permanent loss to real GDP. In 2020-2021, the GDP of India was 1.9% and it will be the lowest after India noted a growing rate at 1.1% in 1991-92 [29]. In early March 2020, the world GDP loss was -0.8% where the negative GDP was also found in China, the US, France, Germany, and Russia (-1.5, -0.2, -1.3, -1.2, and -0.9) %; respectively [82]. This study also indicated that the only the GDP increase in Japan, 01% in 2020. From Figure 1 the mean annual growth rate (%) of the world GDP was (2.5172), Australia (2.7034), Bangladesh (6.0096), Brazil (2.0058), Canada (2.1725), China (8.7050), Germany (0.9585), France (0.8183), United Kingdom (1.1312), Indonesia (4.9112), India (5.8827), Malaysia (4.0633), Pakistan (1.7247), and United States of America (2.5172) during 2001-2020. The Covid-19 and lockdown have a direct effect on GDP and secondary impact on the social system, and human life. [104] stated that the US GDP will stagnate where the China GDP will fall. Due to strict lockdown, reduction in orders from industrialized/developed countries, shipping limits, etc. destructively exaggerated the country's exports.

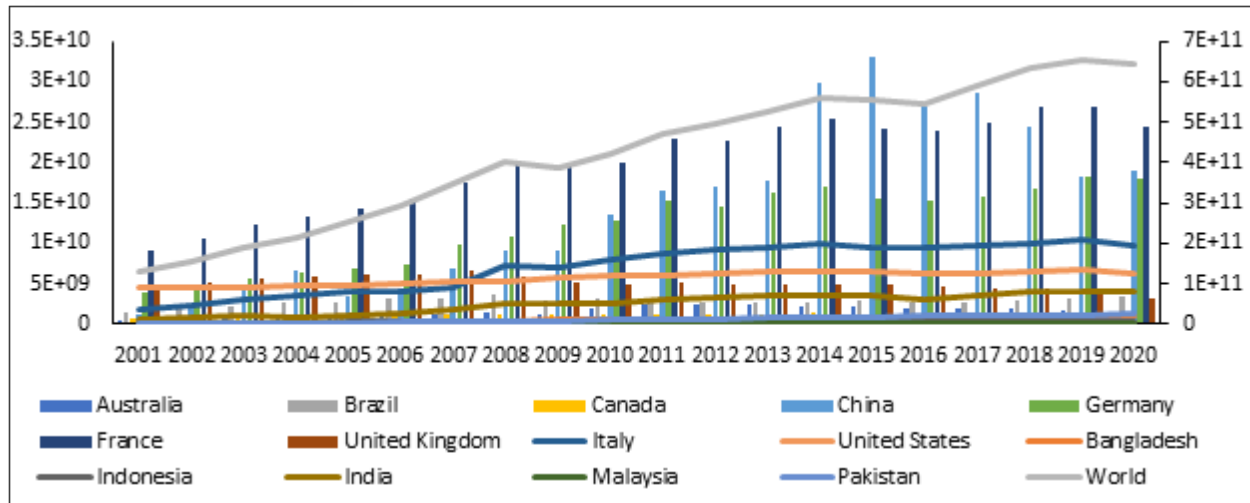


**Figure 1.** The annual growth of GDP flow in the world from 2001 to 2020

Source: <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=BD>

## 2.2 Declination of remittance growth in the world

The recent literature has revealed that developing countries have good opportunities and security in the remittance sector [131]. This sector has been a lifeline for many developing countries in the world. But the COVID-19 and lockdown have an impact and flow on international remittance of the world. Bangladesh received 21.75 billion US dollars from deportees in 2019 which was increased 18.4% of GDP and in 2020, Bangladesh is the eighth largest remittance earner 21749701161 which was increased 6.6% GDP according to the Global Knowledge Partnership on Migration and Development (KNOMAD). Among the eight South Asian countries, Bangladesh received remittances of US\$20 billion and ranks as the third-largest followed by India (US\$75.9 billion) and Pakistan (US\$24.1 billion) in 2020 [122]. World Bank specified that the general migrant workers' remittance from Bangladesh would decay to \$14 billion by 2021 which will about 25% fall from the previous year [123]. In 2019, India was the largest in remittance (83,131 million US dollars, 2.8 percent of GDP), and China (68,398 million US dollars, 0.5 percent of GDP) [17]. [44] stated that after the announcement of lockdown the remittance reduction in 63% in India and 2020 fell the remittance by 0.2%. In Pakistan, the remittance was increased by 17% in 2020 whereas China is the second-largest remittance gainer in 2020. From Figure 2, the mean of the world remittance was (\$423401200000), Australia (\$1551311192.2350), Bangladesh (\$10572532268.8500), Brazil (\$2848885738.3500), Canada (\$1107902355.9050), China (\$14640042250.3), Germany (\$12199508270.25), France (\$19945758256.8), United Kingdom (\$5115213895.9000), Indonesia (\$6693459538.4000), India (\$51383308546.6000), Malaysia (\$1247953030.0950), Pakistan (\$12022300000), and United States of America (\$5746200000) during 2001-2020. The Covid-19 and lockdown have directly affected GDP and secondary impact on the social system, and human life.



**Figure 2.** The remittance flow in the world from 2001 to 2020

Source: <https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT?locations=BD>

### 2.3 Fall of market policy

COVID-19 is the most contrary armistice shock wave to the global budget in a century [121]. The COVID-19 has seen an unparalleled crisis in the form of coronavirus and has affected the global economy. The market is usually the place of all kinds of financial transactions, although the market in the village is considered to be the market for daily necessities. Corona Kalin has had an impact on the market system in the lockdown. Small traders are in trouble. As a result of the lockdown, both sides are suffering. Not only are its effects on market shakiness the largest in the past of pandemics [9], Costa Junior et al., 2021), but numerous hesitation dials have reached their maximum values on record [7], [9], [97]. The COVID-19 and lockdown not only affect the general market but also affect the stock market [8], [94]. [33] stated the economic impact of the COVID-19 crisis was shown in the early investigation in China, exposing that small and medium-sized trades had severely been affected. It is also affected on the Japanese labor market vary across people of different age groups, genders, employment types, education levels, occupations, and industries [70]. [4] reported that the COVID-19 has significant losses in terms of employment, working hours, and labor income 2020. This study also noted that in retort to COVID- 19 crisis, the government of Bangladesh and the Bangladesh Bank provided inclusive care to the labor force across all financial sectors, including agriculture, industry, SMEs, and services. This crisis was sharply declined in the consumption level of humans in the world.

### 2.4 Decelerating private sector credit growth

The COVID-19 and lockdown have a bad effect on the private companies of the world. The ILO's initial valuation of the impact of COVID-19 on exact social and financial sectors and industries is seized in a series of sectoral mandates. It is a very challenging issue for managing private companies. The governments, employers, and workers were faced financial problems in their industries. The COVID-19 and lockdown have an impact on the different organizations of the world like as the post sector, meat processing sector, construction sector, workers proving home, urban passenger transport service, public emergency service, automotive industry, textiles, clothing, leather, and footwear industries, education sector, tourism sector, garments industries, agriculture and food security [61], forest sector, food retail, maritime shipping and fishing [62], hotel industry [132], hand hygiene at the workplace, the health sector [65], Out et al., 2021) and so on. These virus diseases have been effective for a long-time hotel [99], [115]. Such private and government organizations reduction their financial environment of the world and now it is too much dangerous in human life.



### ***2.5 Fall of the tourist industry***

Traveling is the most enjoyable way to meet energetic and travel to new places if the way is free of crime, disease, and calamities. The tourism business was one of the supreme markets in the world; until the world met a disease COVID-19 last December 2019. The fast epidemic of COVID-19 not only exaggerated the worldwide budget on an enormous scale but also challenged social life. The rapid spread of the virus was modified which was an impact on tourism sectors in the world. It has formed a significant effect with international travel bans affecting over 90% of people of the world and widespread limits on public gatherings, community mobility, and tourism mainly comes to a stop in 2020 (Horaira, 2021). After the second world war, the world's global tourism growth has been negative [96]. This study also noted that the global tourist flow was decreased by 58% in 2020 and 77 % decreased average revenues in 2019 [6]. According to the World Tourism Organization (UNWTO), Chinese tourists paid the alike of \$277 billion abroad in 2018; it is proclaimed to be 21% of worldwide travel expenditure [113]. The tourism income reported for about 11% of GDP in 2018; ten years ago, it was only 6% in Thailand (TEO, 2021). The UNWTO stated that the international tourist flow was decreased (60-80%) in 2020 associated with 2019. Tourism incomes around the world were reduced by 600-900 billion US dollars in 2020 [112]. Hotel is a very important element for developing a tourism place but this sector is stressed to continue to the extent that 35% of hotels had to cease their operation temporarily. Dw (2020) noted that the tourism businesses will be lost about 60% and 15% of the hotel operators will completely close their operation in Malaysian.

### ***2.6 Evolving unemployment problem***

Near-term forecasts are most challenging but also most important when the economy experiences an abrupt change. COVID-19 shutdown effect of the global economy [86]. During this COVID-19 and lockdown crisis, huge unemployment has become the major feature of work, with millions of persons and relatives now troupe into a world of uncertainty and precariousness [51]. Because work is associated with existence in many societies, the loss of service chances represents a basis of existential fear which balances and composites the intense worries about sore and untimely death. Without entree to the cash and health protection that many jobs provide, persons in nations like the USA are left in a state of intense fear about how they will endure. While a recent brew of support has been approved in a USA central government relief package, the truth of this funding is that it is fleeting and not justifiable for most who are deprived of work. Moreover, the fast onset of joblessness has helped to reveal the rising disparity that exists in many Western societies [106]. The laborers who have been pretentious by joblessness tend to be those who have had risky jobs in facilities, restaurants, transport, and other fields that characteristically do not offer long-term agreements, dressed wages, and health aids [52]. Rising rates of unemployment also contribute to increasing behavioral health disorders [85], leading to more suffering and deaths (Case and Deaton, 2020). The suicide rate is higher in unemployed people. COVID-19 related unemployment may significantly increase suicide rates, implementation of appropriate preventative measures is critical [31].

In May 2020, 2.3 million Australians either were unemployed or had work hours reduced for economic reasons, resulting in the steepest rise in rates of unemployment on record a change from 5.2% (March) to 7.1% 2, with Treasury predicting a rate of 8% by September [31]. In a study by Bauer and Weber (2020), the authors examined the real impact of anti-pandemic measures on unemployment in Germany. They used the difference-in-differences method where they compared the development of inflows to unemployment and quantified the 60% increase in unemployment due to the shutdown measures. The shutdown measures increased unemployment in the short run by 117,000 persons. In October 2020, the unemployment rate in Slovakia reached the level of 8.2% and the number of jobseekers was 222,242 compared to 168,757 jobseekers in January of the same year [105]. The Global Financial Crisis (GFC), which led to the deepest recession since the 1930s and the loss of 30 million jobs worldwide, is estimated to have resulted in at least

10,000 additional economic suicides between 2008 and 2010 in Europe and North America [90]. Projections using historical data suggest suicide rates may increase by 3.3–8.4% over the 2020–2021 period in the US [77], and up to 27% in Canada [78]. In the setting of the COVID-19 and lockdown crisis, however, the pathological danger is imperceptible, inserting people into a reliable state of horror that becomes extra difficult to lessen.

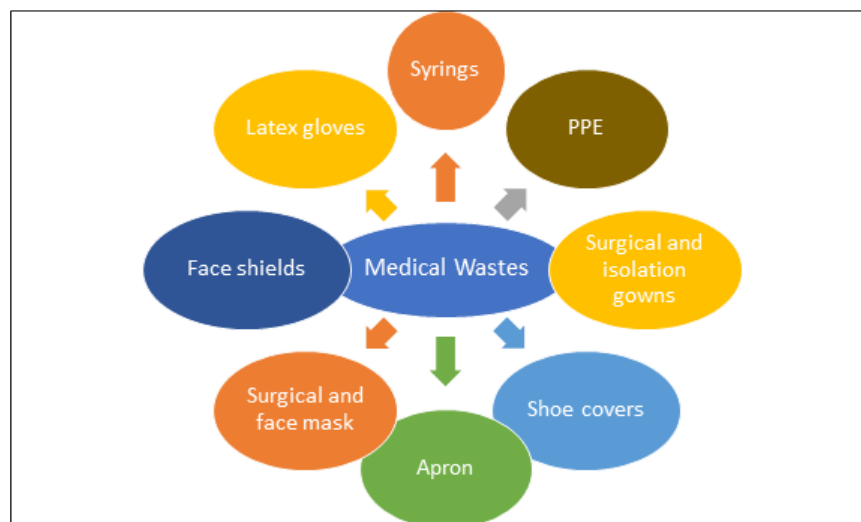
## **2.7 Water pollution**

Water is one of the very important natural resources which is an effect on life-supportive mechanisms of the environment and it springs energy to all biotic and abiotic elements of the ecosphere. It has been fervently polluted by various human activities like industrialization, agricultural practice, urbanization, and over misuse in normal times. During the lockdown period, [45] studied that the pollution level of the aquatic environment has been strangely released because of no mingling of industrial wastewater, solid waste, heavy metals, etc. [84] stated that the COVID-19 was traces in wastewater and the practice of sterilizing outdoor spaces in numerous metropolises in the world, which can result in the entrance of sanitizers and their byproducts into storm drainage schemes and their ensuing release into rivers and coastal waters, increase the issue of environmental, ecological and public health effects. The occurrence of COVID-19 has been noticed in untreated wastewater in the Netherlands [75], [79], Australia [3], and the USA [130]. COVID-19 can be found in rivers in India at the rate at which corona dead bodies were found. An increasing doubt hence occurs on how water handiness and managing in several countries can address the challenges of the COVID-19 epidemic since COVID-19 has changed water drinking patterns and also made the effects of drought and constant water lacks more acute in countries like Ireland, the UK, Turkey, Poland, Romania, Kosovo, Ethiopia, Kenya, India, Syria, and so on already suffering from climate variation and continuous decline in rainfall patterns [110], [53], [102], [26], [15].

## **2.8 Microplastic pollution**

Plastic has been carrying a lot of weight in human life for ages. But it has moved not only on the positive side but also on the negative side. The new revolution that began with the discovery of plastics in 1845 is harming the environment today. It is contributing to great advances in health through food safety and disposable medical equipment. It is one of the most motivating topics of transboundary amount with lots of plastic substances of manifold sizes, from nano to macro, being cleared into the rivers and seas daily [40]. The intimidations that plastic pollution stances to nautical environments have been considered for a long time and are well soundless [16], [69]. Their use in treatment as disposables is allowable to decrease the risk of the transmission of blood-borne pathogens as well as decrease costs with material dusting and purification [71]. Plastics now have a crowd of applications, with global manufacture attainment of 359 million tons in 2018 [39]. However, unselective use and waste mishandling have led to the common environmental pollution of plastics. Over 5 trillion plastic parts are flooded in the world's oceans [38], with a projected annual influence from plastic waste elated by rivers of 1.2-2.4 million tons [72]. The persistence, irreversibility, and ubiquity of plastics in the environment, as well as possible effects on environmental societies and bio-network operative, have led to their description as a planetary boundary threat [114]. The global mask production rate has seen tremendous growth and will continue to rise in the upcoming years. The medical wastes are syringes, latex gloves, face shields, surgical and face masks, apron, shoe covers, surgical and isolation gowns, PPE, etc. during the COVID-19 pandemic in the hospital and home (Figure 3). As an example, globally, China is the major producer of global face masks. Face mask production in China increased to 116 million per day in February 2020, 12 times higher than usual [2]. The global face mask market's value rose from 0.79 billion USD in 2019 to approximately 166 billion USD in 2020 [87]. A yearly calculated plastic waste group in Bangladesh was plastic surplus from N95 (25,709.9 ton), SM (42,205 ton), total plastic surplus (67,996 ton), mismanaged surplus (65,786.13 ton), debris upper

estimation (26314.45 ton), lower estimation (9867.91 ton) input into oceans from face masks [22]. Inadequate supervision of only 1% of face masks may contribute to a surplus of 30,000–40,000 kg per day [126]. Polymers having high concentrations like polyvinyl alcohol, polyester, and polyvinyl chloride may end up at the bottommost of the sea [32], [42].



**Figure 3.** Medical wastes originated during the COVID-19 pandemic





**Figure 4.** Photographs of surgical face masks polluting the streets and beaches [107]

## **2.9 Health emergency**

COVID-19 is the current crisis for the common factor of human hygiene in the world. The human COVID-19 virus disease was early documentation in Wuhan, China in December 2019 [66]. It was declared a global epidemic on March 11, 2020 [63]. The most common symptoms of COVID-19 are fever, cough, headache, sore throat, and fatigue, sputum production, dyspnea, diarrhea, hemoptysis, and lymphopenia [48]. The COVID-19 virus can lead to respiratory failure, cardiac injury, distress syndrome, acute respiratory and even death [54]. This virus disease has affected more than 215 territories and countries of COVID-19 around the world on 20 May 2020. The infestation and mortality rate increasing day by day [67]. In September 2020, over 36 million people have been infected by the COVID-19 were over 1 million deaths [128]. By the end of 2020, more than 80.3 million tests and 1.77 million deaths had been stated worldwide [35]. In March 2021, the plague has quickly swept across the globe contaminating more than 122 million people, and more than 2.69 million people died (JHUSM, 2021, [129]. In Bangladesh first three cases of COVID-19 were detected on 08th March 2020 (IEDCR, 2020). It touched 100 cases on 9 April 2020 and exceeded 200 cases (Case Doubling Time) within the next two days. As of October 12, 2020, there were 379,738 confirmed cases including 5,555 deaths with the case fatality and recovery rate 1.85% and 77.5%; respectively in Bangladesh [125]. The pandemic has rapidly swept across Bangladesh infecting more than 962 thousand people, recovering more than 475 thousand people, and more than 8 thousand people died [64].

Since December 2019, COVID-19 has spread rapidly from Wuhan, China, around the world [68]. The preventive actions for minimizing the COVID-19 virus infestation in the human being and the requirements are community health education, medical properties distribution, heightened case documentation, quarantine (high-risk group quarantine), restriction of the visit other countries, public place, and restriction of patient visitors in hospitals [47], [117]. The use of the marks, hand gloves, and hand sanitizer reduces the spread of the COVID-19 [73]. These actions increased the use of medical gloves, face masks, and gowns in healthcare structures and among the public [56]. The hands, eyes, nose, and mouth are the very common truck for micro-pathogens, and hand washing is dynamic in stopping this virus, which is an important habit in home and hospital [74].

## **2.10 Shock in education**

The covid-19 impact of the pandemic has a sure influence on various walks of life around the world. the covid-19 has been changed a lot in the social life of the global. To keep the community distance between human beings to avoid being infected is the most significant plan for all the countries. Many schools, colleges, and universities have been locked down to minimize the spread out of this coronavirus infection [20]. Even though the geographic distance among different countries converts smaller due to the feast out of this coronavirus, the social distance between human beings should be enlarged to avoid being infested [57], [21]. UNESCO estimated that more than 1.5 billion students and 63 million educators are exaggerated by school closures in 188 countries in 2020 [111]. Due to doubt on schedules, applications for most graduate plans are delayed to a specific time or irrecoverable around the world [81]. It has created significant challenges for the global advanced education community [27]. Learning methods should be invented to keep on the education process but away from being infested for education during the pandemic. The best way to facilitate school, college, and university teaching in lockdown is to take online classes. Educational institutions have been closed in Bangladesh since the beginning of 2020, and so 3rd or 4th-year examinations have not been held. This has caused frustration among the students. Although thousands of institutions continue their activities in the world, it is not possible to take the examination for this year. The

online class is the face-to-face teaching best system to manage the social distance among the students which straight disturbs the quality of education [108]. Students could not manage classes online or they do not have an electric device in the poor family. Again, many live in remote villages, so there are no internet facilities. Many students are dealing with a busy life in the name of video games. Many are in class but cheating with respected teachers. Google met or zoom is a good online system, but students are using it differently. The government was followed the auto pass system for Higher Secondary Certificate level students in 2020 in Bangladesh. At the end of 2021, SSC and HSC Level students will be tested on three subjects in Bangladesh.

### ***2.11 Restrictions in recreation***

Because of COVID-19 and Lockdown, the young people wanted to do something new as entertainment, which resulted in Frank and Funny short videos. Where many people want to highlight the problems of society which are expressed through jokes. School, college, university, and medical students have also done business through funny videos, different types of dances, and songs on social media. Again, many have made money with the delivery of various meals in the home to solve financial problems. In the lockdown condition, people change some permanent desk behavior routines, like as lying down, sitting, watching TV, playing games for a long time, or always being devoted to the awning with mobile policies; a decline in the level of physical activity eventually increases the risk possible for chronic fitness situations [19]. The young adult population is sitting more than three hours during COVID-19 compared to before the lockdown [91], [95]. The younger show less movement and augmented sitting behaviors while expenditure more time inside [24], [80], [89]. Generally, the lockdown is observed only in cities, not in rural areas. So, the children of the village play different types of games that they used to play, but the number of the games or players would be less. For example, playing football on a rainy day is a very common game in the village but now no parents ever allow their child to play in the rain because there is only one reason if they are infested as a cough which is a common symptom of COVID-19. At this time some online video games have been developed that many of our young people like. Newspapers have reported that many people have died for this video game, just as many people have died while making funny videos.

## **3. THE POSITIVE IMPACT OF COVID-19 IN THE WORLD**

### ***3.1 Reduction in air pollution***

The WHO approximations that about 91% of the world's people are unprotected to poor air quality and that 4.2 million persons die each year from causes straight accredited to air pollution (WHO, 2020). [43] evaluate that the study observed the air pollution in the countries of China, USA, France, Italy, India, UK, Spain, and Other countries of the world. The findings are the COVID-19 and the lockdown improve the air quality. Several recent studies have taken about the air pollution in the world. Recently, those researches were focused on the change in air quality and connection of air elements. Such studies were conducted in the cities of 44 cities in China [11], Almaty (Kazakhstan) [58], Barcelona (Spain) [109], Milan (Italy) [23], Stockholm, Sweden [93], Rio de Janeiro (Brazil) [98], to know about the NO<sub>2</sub> levels [23], CO levels [28], Particulate Matter [23], etc. in the air during COVID-19 session. Those studies were confirmed that the signs of progress of the air quality [92], and the average reduction of 7.8% of the air pollutants (i.e. SO<sub>2</sub>, Particulate Matter, NO<sub>2</sub>, and CO) [41]. The burning and dumping of the waste plastic affect the air quality which is used for minimizing the COVID-19 in the world. The plastic waste released significant amounts of CO<sub>2</sub> and CH<sub>4</sub> which were effective on the air quality [88].

### ***3.2 Reduction in noise pollution***

Amongst all pollutants, noise pollution is the third most dangerous pollutant after air and water pollution in

the world. Noise pollution is very evident in urban cities and is generally evaluated that the sound level comes from different human activities (e.g., factories, machines, vehicles, construction work, etc.) that are effective in human and living organisms [133]. Moreover, due to the lockdown, the number of industrial works stop, public transports, and flights movements have radically reduced in the world, which has eventually decreased the noise pollution during the COVID-19 pandemic period. [100] stated that passenger air travel has been decreased more than 90%, car traffic has dropped less than 50% and trains are running more than 25% in Germany than the normal tolls. In Delhi (India), noise pollution was drastically reduced by about (40-50) % during the lockdown session [103]. For this, the COVID-19 lockdown and declines in financial activities decreased the noise pollution in the world.

### ***3.3 Regeneration of biodiversity***

The COVID-19 pandemic and lockdown are effects on the economy and society which have produced some benefits and risks to biodiversity in the world. Ecological studies considered to relate the state of biodiversity before and after COVID-19 conjectured to disturb its qualities must normalize sampling for both periods. Only then may alterations in outcomes be attributable to the COVID-19 of interest. When the COVID-19 epidemic and lockdown started, research scholars retorted by scheming studies to describe biodiversity comebacks to changes in human behavior [12]. Weather and climate are the most important elements of the biodiversity of the world whereas climate change is a key feature of biodiversity loss and the loss of species has harmful effects on the weather. Climate change has impaired the increase in the amount of concentration CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, CO, SO<sub>2</sub>, etc., and top to additional biodiversity loss (ECQA, 2020). The ecological studies stated that the biodiversity of the agriculture, freshwater fish, socio-economy-welfare, and environmental sciences are improved during the COVID-19 period [30], [25].

### ***3.4 Digital transformation***

Digital transformation is the method of using digital technologies to generate new or adjust current business procedures, customer, and cultural knowledge to meet altering business and market necessities. In this transformation needs of teleworking, telecommuting, working at home, working from home, virtual work, working remotely, mobile work, e-work, e-commuting, flexible workplace, and freelancing have all been used to designate the current styles of work and to jump-start digital transformation of the staff. It is based on the digital supply network system [101]. It is created a new system for sales, marketing, and customer service. COVID-19 affects all the sectors of economic, agriculture, industries, private and government organization but the digital transformation system is ongoing during the COVID-19 pick period [36]. Using digital transformation, people would come to take the necessary things in this lockdown by maintaining social distance. In which there was medicine, daily necessities, curry, and many more where all that was needed was just a phone call. However, some extra money was indeed spent. The COVID-19 disaster is likely to wipe out 10.5% of working times worldwide in the second quarter of 2020 equal to 305 million full-time laborers with large decreases predicted for Asian financial prudence [51].

## **4. Conclusions and Recommendations**

COVID-19 and lockdown have played an important role in the stability of the environment and significant wave the economic condition which has reshaped old problems as new like an unemployed and educational problem, water, and microplastic pollution in the world. The positive side of covid-19 was the reduction in air and noise pollution, regeneration of biodiversity, and established digital transformation. The environmental condition is not permanent but it may change after release the lockdown in the world.

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improved the draft copy. RR and MU were contributed to revise and improve the manuscript thoroughly. All authors reviewed carefully and approved the final version of the manuscript.

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